

AMENDMENTS TO THE CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (Cancelled)

Claim 2 (Cancelled)

Claim 3 (Currently amended) The process of Claim 112, wherein the reactive components C) and D) are added simultaneously to the prepolymer.

Claim 4 (Currently amended) The process of Claim 112, wherein component C) is added to the prepolymer first, and then component D) is added.

Claim 5 (Currently amended) The process of Claim 112, wherein component D) is added to the prepolymer first, and then component C) is added.

Claim 6 (Cancelled)

Claim 7 (Cancelled)

Claim 8 (Currently amended) The process of Claim 112, wherein C) said low molecular weight polyol comprises ethylene glycol, butanediol, hexanediol, 1,4-di-(beta-hydroxyethyl)-hydroquinone, or 1,4-di-(betahydroxyethyl)bisphenol A.

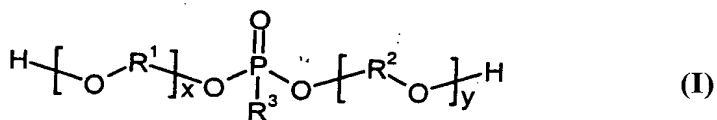
Claim 9 (Currently amended) The process of Claim 112, wherein component D) has a functionality of, on average, 2.

Claim 10 (New) A thermoplastically processable polyurethane elastomer (TPU) having a tensile strength of > 35 MPa, with shrinkages of < 3% and with self-extinguishing properties which comprise the reaction product of:

- (1) a prepolymer containing NCO groups which comprises the reaction product of
 - A) at least one organic diisocyanate comprising a diphenylmethane diisocyanate or a polyphenyl polymethylene polyisocyanate, and
 - B) at least one polyether polyol having on average at least 1.8 and not more than 3.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \bar{M}_n of 450 to 10,000;

with

- (2) an isocyanate-reactive component comprising:
 - C) at least one low molecular weight polyol or polyamine having on average at least 1.8 and not more than 3.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \bar{M}_n of 60 to 400 as a chain lengthener; and
 - D) from 1 to 15 wt.%, based on the total weight of the TPU, of at least one organic phosphorus-containing compound having on average about 2.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \bar{M}_n of 60 to 10,000, wherein said organic phosphorus-containing compound is selected from the group consisting of (1) one or more phosphonates which correspond to the structural formula:



wherein:

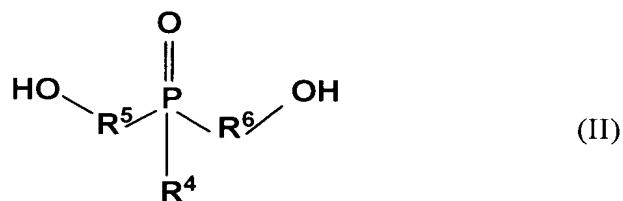
R^1 and R^2 : are the same or different, and each independently represents a branched or unbranched alkylene radical having 1 to 24 carbon atoms, a substituted or unsubstituted arylene radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkylene radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkarylene radical having 6 to 30 carbon atoms;

R^3 : represents a hydrogen atom, a branched or unbranched alkyl radical having 1 to 24 carbon atoms, a substituted or unsubstituted aryl radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkyl radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkaryl radical having 6 to 30 carbon atoms;

and

x and y each independently represents a number from 1 to 50;

and (2) one or more phosphine oxides which correspond to the structural formula:



wherein:

R^4 : represents a hydrogen atom, a branched or unbranched alkyl radical having 1 to 24 carbon atoms, a substituted or unsubstituted aryl radical having 6 to 20 carbon atoms, a substituted or

unsubstituted aralkyl radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkaryl radical having 6 to 30 carbon atoms;

and

R^5 and R^6 : are the same or different, and each independently represents a branched or unbranched alkylene radical having 1 to 24 carbon atoms, a substituted or unsubstituted arylene radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkylene radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkarylene radical having 6 to 30 carbon atoms;

with the proviso that components C) and D) are different;

and, optionally, in the presence of:

- E) one or more catalysts;
- F) from 0 to 70 wt.%, based on the total weight of the TPU, of at least one further flameproofing agent which contains no Zerewitinoff-active hydrogen atoms and has a number-average molecular weight \overline{M}_n of 60 to 10,000;

and/or

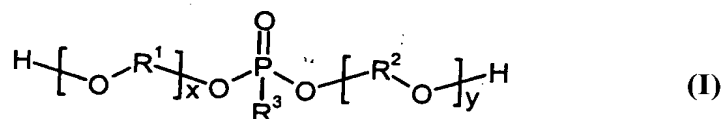
- G) 0 to 20 wt.%, based on the total weight of the TPU, of further auxiliary substances and additives;

wherein the Isocyanate Index ranges from 85 to 120.

11 (New) A process for the preparation of thermoplastically processable polyurethane elastomers (TPU) with tensile strengths of > 35 MPa, with shrinkages of < 3% and with self-extinguishing properties, comprising:

- (I) preparing a) a prepolymer containing NCO groups by reacting
 - A) at least one organic diisocyanate comprising a diphenylmethane diisocyanate or a polyphenyl polymethylene polyisocyanate,
- with

- B) at least one polyether polyol having on average at least 1.8 and not more than 3.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \overline{M}_n of 450 to 10,000;
- (II) reacting a) said prepolymer with b) an isocyanate-reactive component comprising:
- C) at least one low molecular weight polyol or polyamine having on average at least 1.8 and not more than 3.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \overline{M}_n of 60 to 400 as a chain lengthener;
- and
- D) from 1 to 15 wt.%, based on the total weight of the TPU, of at least one organic phosphorus-containing compound having on average about 2.0 Zerewitinoff-active hydrogen atoms and a number-average molecular weight \overline{M}_n of 60 to 10,000, wherein said organic phosphorus-containing compound is selected from the group consisting of (1) one or more phosphonates which correspond to the structural formula:



wherein:

R^1 and R^2 : are the same or different, and each independently represents a branched or unbranched alkylene radical having 1 to 24 carbon atoms, a substituted or unsubstituted arylene radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkylene radical having 6 to 30 carbon atoms, or a substituted or

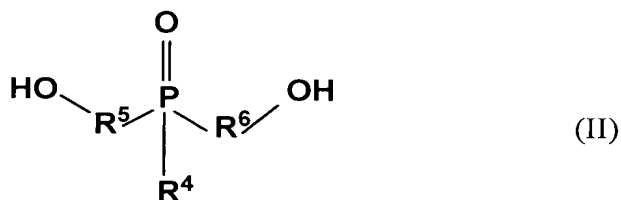
unsubstituted alkarylene radical having 6 to 30 carbon atoms;

R^3 : represents a hydrogen atom, a branched or unbranched alkyl radical having 1 to 24 carbon atoms, a substituted or unsubstituted aryl radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkyl radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkaryl radical having 6 to 30 carbon atoms;

and

x and y each independently represents a number from 1 to 50;

and (2) one or more phosphine oxides which correspond to the structural formula:



wherein:

R^4 : represents a hydrogen atom, a branched or unbranched alkyl radical having 1 to 24 carbon atoms, a substituted or unsubstituted aryl radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkyl radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkaryl radical having 6 to 30 carbon atoms;

and

R^5 and R^6 : are the same or different, and each independently represents a branched or unbranched alkylene radical having 1 to 24 carbon atoms, a substituted or unsubstituted arylene radical having 6 to 20 carbon atoms, a substituted or unsubstituted aralkylene radical having 6 to 30 carbon atoms, or a substituted or unsubstituted alkarylene radical having 6 to 30 carbon atoms;

with the proviso that components C) and D) are different;

with steps (I) and/or (II) optionally being carried out in the presence of

E) one or more catalysts,

and, optionally, with the addition of:

F) 0 to 70 wt.%, based on the total weight of the TPU, of at least one further flameproofing agent which contains no Zerewitinoff-active hydrogen atoms and has a number-average molecular weight \overline{M}_n of 60 to 10,000,

and/or

G) 0 to 20 wt.%, based on the total amount of TPU, of further auxiliary substances and additives,

wherein the Isocyanate Index ranges from 85 to 120.